Far Visual Acuity

Recommended Guideline

Best-corrected acuity of 20/20 measured in both eyes simultaneously.

Periodic visual screening of employees to ensure stability of far visual acuity.

Testing Specifications

Far visual acuity as measured:

- using Landolt rings of Sloan letters as optotyes.
- with test sizes in logarithmic steps approximately .1 on successive lines.
- with equal numbers of letters (8 or 10) per line.
- using black letters on a white background illuminated to approximately 85 cd/m2.
- at a distance of 4 meters.

Experts' Comments

"The 20/80 acuity cutoff for uncorrected vision would exclude a sizeable portion of the population."

Near Visual Acuity

Recommended Guideline

Near visual acuity of 1M as measured by Sloan M Cards.

Corrective lens are acceptable if worn on the job and if the candidate meets the above guideline.

Testing Specifications

Sloan M Cards to be administered:

- at 40 cm reading distance, and
- illuminated to 85 cd/m2.

1M acuity is the smallest test size that can be read with ease.

Experts' Comments

"...good acuity is not required in order to read proficiently."

"1M is roughly comparable to a Snellen acuity of 20/40, and should be satisfactory for reading most print materials."

Visual Color Discrimination

Recommended Guideline

Using the Farnsworth D-15 test, more than two minor errors or one major error constitutes failure.

Candidates who fail the D-15 test should be retested with materials that are representative of the actual color discrimination tasks they will have to perform (e.g., clothing and medication).

Corrective lenses are acceptable.

Testing Specifications

Farnsworth D-15:

Illumination should be via a daylight color adjusted tungsten source providing at least 250 lux.

Color Samples:

Illumination type and level should be comparable to that encountered on the job.

Experts' Comments

"The color vision standard...would exclude about 5% of the male population...but these individuals can generally use color names correctly in everyday situations."

"...these individuals should (not) be excluded without some evidence to indicate that their color deficiency would result in errors on required tasks."

Basic Auditory Abilities

Recommended Guideline

In each ear:

- Pure-tone thresholds worse than 15 dBHL at 500, 1000, 2000, and 3000 Hz.
- Hearing aids are acceptable if candidate wears the hearing aid on the job and is able to meet the above guidelines with aid set at normal volume.

Testing Specifications

Pure-tone thresholds to be measured:

- in a quiet room meeting ANSI S3.1 (1977) standards;
- using equipment calibrated to ANSI 3.21 (1978) standards, and
- by a certified audiologist.

Experts' Comments

- "... suggest that hearing aid users do not be eliminated..."
- "This criterion is based upon a relatively recent, and generally accepted, criterion for normal hearing in the (single) test ear."
- "...pure tone thresholds not worse than 15 dBHL seem a bit too stringent."

Speech Perception

Recommended Guideline

QUIET ENVIRONMENT

In either ear:

- Pure-tone thresholds not worse than 29 dBHL at 500, 1000, 2000, and 3000 Hz.
- Speech discrimination to exceed 75% at 50 dBHL in a sound field when using recorded CID W22 monosyllabic word lists.
- Hearing aids are acceptable if candidate wears the hearing aid while on the job and is able to meet the above guidelines with aid set at normal volume.

NOISY ENVIRONMENT

In the better ear:

- Pure-tone thresholds not worse than 20 dBHL at any 3 of the 4 frequencies of 500, 1000, 2000, or 3000 Hz.
- Speech discrimination to exceed 75% at 50 dBHL in a sound field when using recorded CID W22 monosyllabic word lists.
- Pure-tone thresholds not worse than 30 dBHL at any 3 of the 4 frequencies of 500, 1000, 2000, or 3000 Hz.
- Hearing aids are acceptable if candidate wears the hearing aid while on the job and is able to meet the above guidelines with aid set at normal volume.

Testing Specifications

Pure-tone thresholds to be measured:

- in a quiet room meeting ANSI S3.1 (1977) standards.
- using equipment calibrated to ANSI 3.21 (1978) standards, and
- by a certified audiologist.

Experts' Comments

"The 49% cutoff for the W22 lists seems lax: 50% is a 'poor' score – 75%, as used for most of the other categories, is more reasonable."

"I am not convinced that the guideline ... should be any different than that for a quiet environment ... a person with pure-tone thresholds not worse than 29 dBHL should function reasonably well in a noisy environment."